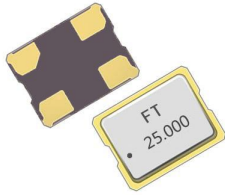


## SMD QUARTZ CRYSTAL OSCILLATOR



### 4 Pad Version 7.0×5.0 mm

- ±20 ppm type available
- Excellent Reliability Performance
- EMI shielding possible by grounded lid
- Reflow soldering temperature: 260°C max
- Ceramic Seam Weld package



RoHS compliant

### ★ PARAMETERS

PARAMETERS	SPECIFICATION
Frequency Range	1~160MHz, 32.768KHz
Supply voltage	1.8V、2.5V、2.8V、3.3V、5.0V
Input Current	See Below
Frequency Stability Overall	±20ppm~±50ppm
Operating Temp. Range	-10~+60°C to -40~+85°C, (-40~+125°C available)
Storage Temp. Range	-55~+125°C
Output Load	HCMOS/TTL (15pF~30pF/10TTL)
Symmetry	45%~55% typ. (40%~60% max.) at 0.5×V <sub>DD</sub>
Start-up time	10mS max
Enable/ Disable Function	E/D

⊙ All specification subject change without notice.

### ★ FREQUENCY STABILITY VS. TEMPERATURE

Operation Temperature Range	Frequency Stability			
	±20ppm	±25ppm	±30ppm	±50ppm
-10°C~+60°C	○	●	○	○
-20°C~+70°C	○	○	●	○
-40°C~+85°C	○	○	○	●

● standard ○ available

### ★ Rise & Fall TIME MAX.

Frequency	Rise & Fall Time	Note
1.0~9.9 MHz	6nS max	rise time: 0.1 V <sub>DD</sub> ~ 0.9 V <sub>DD</sub> fall time: 0.9 V <sub>DD</sub> ~ 0.1 V <sub>DD</sub>
10.0~39.9 MHz	5nS max	
40.0~69.9 MHz	4nS max	
70.0~125.0 MHz	3nS max	

### ★ DIMENSIONS & LAND PATTERN LAYOUT (Unit: mm)

Pin	Connection
1	E/D
2	GND
3	Output
4	V <sub>DD</sub>

Recommended land Pattern

### ★ PART NUMBER GUIDE e.g. FXO12.000M3.3SM7-50D(\*SM7=7.0×5.0SMD TYPE)

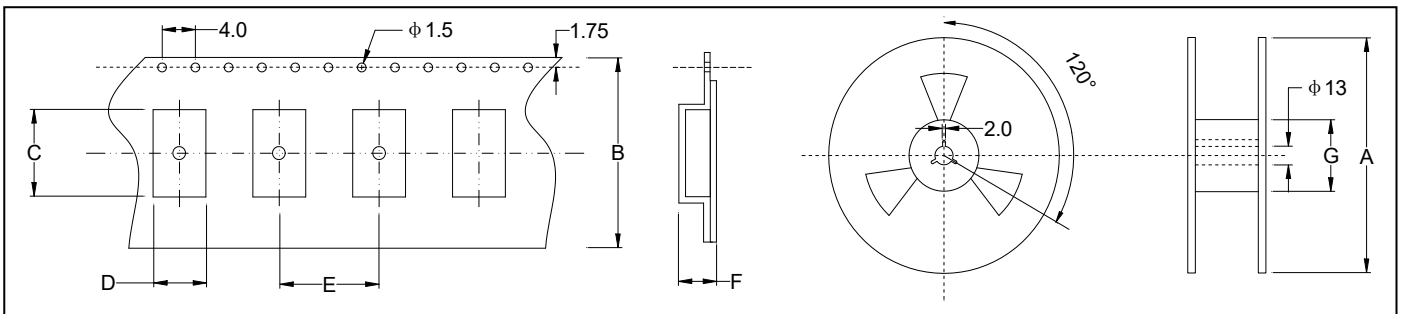
	Quartz Crystal Oscillator	Frequency	Supply voltage	Package	Frequency Stability ppm	Operating Temp. Range
F	XO	12.000	3.3	SM7	50	D

Definition	Description	
Operating Temperature Range	A: -10~+60°C	B: -20~+70°C
	C: -30~+80°C	D: -40~+85°C
	E: -30~+105°C	F: -40~+105°C
	G: -40~+125°C	S: Customer specified

### ★ INPUT CURRENT

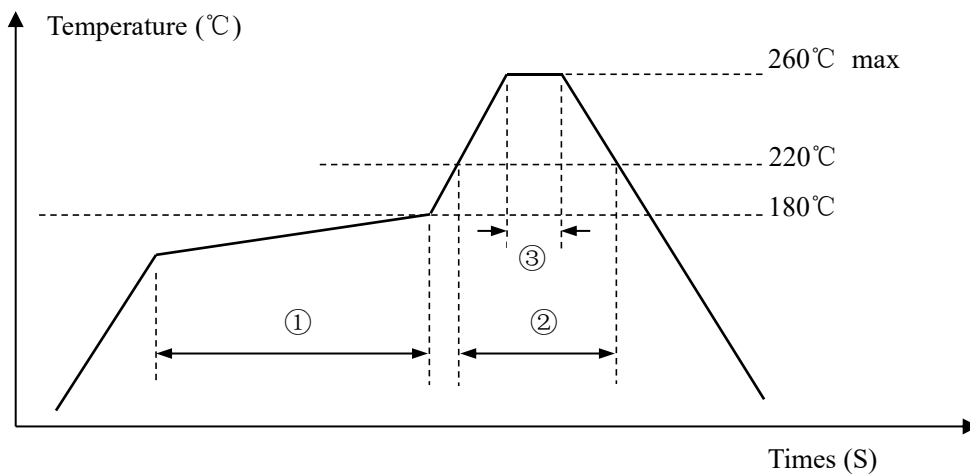
V <sub>DD</sub> =5.0V				V <sub>DD</sub> =3.3V			
15pF load		30pF load		15pF load		30pF load	
1.0 ~ 19.9 MHz	12 mA	1.0 ~ 19.9 MHz	15 mA	1.0 ~ 19.9 MHz	8 mA	1.0 ~ 19.9 MHz	15 mA
20.0 ~ 39.9 MHz	20 mA	20.0 ~ 39.9 MHz	30 mA	20.0 ~ 39.9 MHz	15 mA	20.0 ~ 39.9 MHz	25 mA
40.0 ~ 59.9 MHz	30 mA	40.0 ~ 59.9 MHz	35 mA	40.0 ~ 59.9 MHz	25 mA	40.0 ~ 59.9 MHz	30 mA
60.0 ~ 79.9 MHz	45 mA	50.0 ~ 80.0 MHz	55 mA	60.0 ~ 79.9 MHz	35 mA	60.0 ~ 80.0 MHz	35 mA
80.0 ~ 125.0MHz	60 mA			80.0 ~ 160.0MHz	50 mA		

### ★ TAPING SPECIFICATION (Unit: mm)



	A	B	C	D	E	F	G
OSC-SMD7050	178±2.0	16.0±0.3	7.40±0.15	5.40±0.15	8.0±0.1	2.2±0.1	60.5±1.0
1000 pcs per reel							

### ★ REFLOW SOLDERING PROFILE



Pb free reflow A	①	Preheat	160~180°C	120sec. max
	②	Primary heat	220°C	60sec. max
	③	Peak	260°C	10sec. max.